



MOTOROLA

MaxTrac 50
Mobile Radio



Choose the MaxTrac 50 mobile!

Powerful—With a variety of powers to choose from, the dependable MaxTrac 50 mobile lets you communicate over a wide range.

Reliable—The MaxTrac 50 mobile is designed to take day-in, day-out wear and tear. It meets or exceeds the stringent demands of MIL-STD 810C and D for shock and vibration with optional extra stability mount (B663). The result is a radio you can count on for a long, long time.

Versatile—A wide range of standard features . . . dual channel synthesized operation, Private-Line or Digital Private-Line squelch models . . . combined with many options give this radio optimum flexibility.

Flexible—These radios are not only synthesized . . . they're also programmable. Now frequencies and squelch codes can easily be changed at your local Motorola service center.

Affordable—Perhaps the best reason to own a MaxTrac 50 radio is its low price. So if you're looking for a quality radio with built-in dependability, look no further than the MaxTrac 50 mobile.

Built-in Quality—All MaxTrac radios are built with the same, high quality standards you'd expect from Motorola. Now you, too, can depend on Motorola two-way radios . . . for less than you imagined.

Reach for MaxTrac 50 mobile radios. . . a whole new dimension in affordability!

MaxTrac 50 mobile radio

Performance Specifications

General

	VHF		UHF	
Model Series:	D33MJA	D43MJA	D34MJA	D44MJA
Frequency:	146-174 MHz		449-470 MHz	
Channel Capability:	2			
Power Output:	25 W	45 W	25 W	40 W
Dimensions: (H x W x L):	2" x 7" x 7.8" (50.8 x 178 x 198mm)			
Weight:	61 oz. (1.73 kg)			
Primary Voltage Input:	13.8 VDC			
FCC Designation:	45W—ABZ89FT3730 25W—ABZ89FT3712		40W—ABZ89FT4725 25W—ABZ89FT4713	

Transmitter

	VHF		UHF	
RF Power Output:	25 W	45 W	25 W	40 W
Spurious & Harmonic Emissions:	− 57 dB	− 60 dB	− 57 dB	− 60 dB
Frequency Stability − 30° to + 60°C 25°C Ref.:	± 0.0005%			
Modulation:	16K0F3E, 16K0F1D, 15K0F2S			
Maximum Frequency Separation:	11.2 MHz		10 MHz	
Audio Distortion:			5%	
Output Impedance:			50 Ω	
Modulation Sensitivity:			80 mV	

Receiver

	VHF	UHF
Channel Spacing:	30 kHz	25 kHz
Sensitivity 12 dB SINAD:	.30 μV	
Intermodulation EIA SINAD:	-75 dB	-70 dB
Spurious & Image Rejection:	-75 dB	-70 dB
Frequency Stability -30° to +60°C 25°C Ref.:	± 0.0005 %	
Input Impedance:	50 Ω	
Audio Output: (@ Less than 5% Distortion)	3 W	
Maximum Frequency Separation:	11.2 MHz	10 MHz

Vibration and Shock Methods

Standard	Method	Procedure	Test	Radio Performance
MIL-STD 810C ¹	514.2	VIII	Vibration	Meets or exceeds published specs following vibration
MIL-STD 810D ¹ Curve: Category 10 minimum integrity swept sine & random	514.3	I	Vibration	Meets or exceeds published specs following vibration.
MIL-STD 810D	516.3	I	Shock	Meets or exceeds published specs following shock.
EIA RS-152B and EIA RS-204C	14.3 24.2		Vibration	Remains operational during vibration and meets or exceeds published specs after vibration
EIA RS-152B and EIA RS-204C	15 25		Shock	Meets or exceeds published specs following shock.

(1)—Extra stability mount is required to meet MIL 810 C/D specs. Can only be used with non locking trunnion

Standard MaxTrac 50 mobile includes:

- Compact palm microphone
- ¼ wave antenna
- Mounting trunnion and hardware
- Power cable
- 3 watt internal speaker
- 30 second Time-out timer
- 5 pin options connector

MaxTrac 50 mobile options:

- Telephone interconnect microphone
- 5 Watt External speaker
- Control station operation
- Keylock mount
- Extra stability mount
- Noise cancelling microphone
- Ignition switch cable
- Full size palm microphone
- Handset
- Public Address
- Stat-Alert
- Quik-Call II Signalling
- DTMF Decode Signalling
- 16 pin expanded options connector



Support Services

Wherever Motorola sells, our product is backed by service. In the U.S., we have 900 authorized or company-owned centers. In addition, our products are serviced throughout the world by a wide network of company or authorized independent distributor service organizations.

Winner 1988



MOTOROLA

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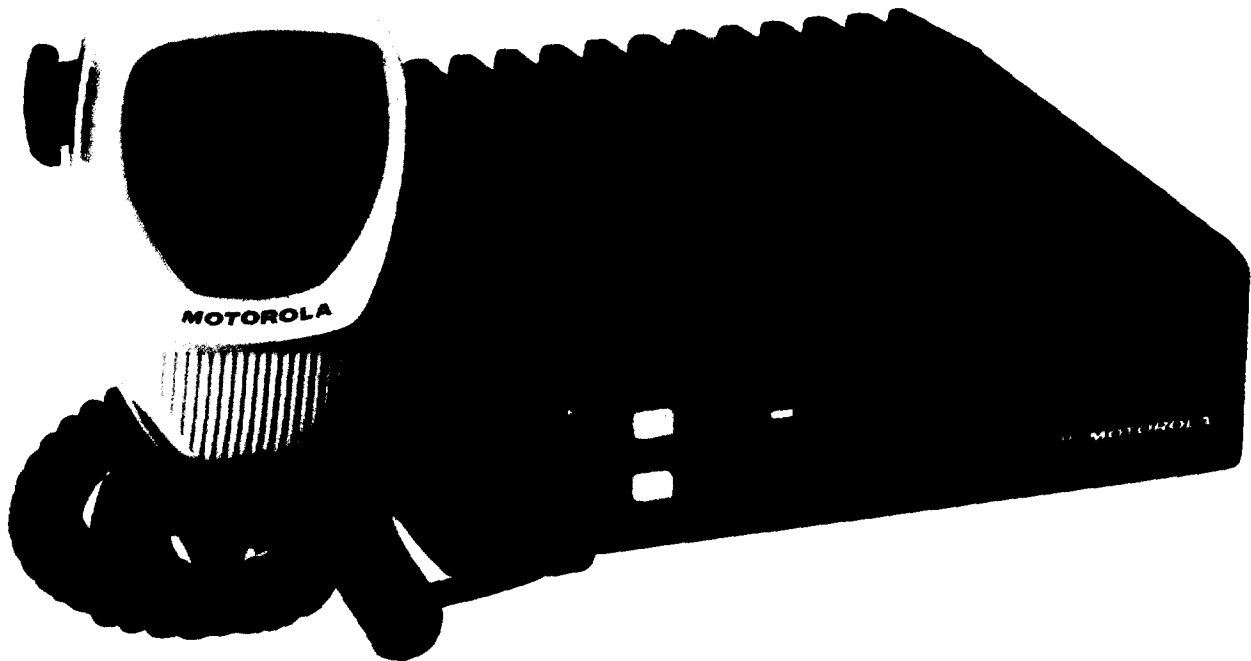
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MOTOROLA

MaxTrac 100 Mobile Radio

Rev. 10-81
R3 1 144A



(Shown with optional full-sized palm microphone)



Featuring:

- Synthesized 2 channel operation
- Choice of high or low power
- Talkaround operation
- Wide band flexibility
- Multiple Private-Line/
Digital Private-Line coded
squellch capability
- Simplified operation
- Field programmable



"MaxTrac 100" Mobile Radio

STANDARD Feature/Advantage

Synthesized Broadband Operation—A synthesizer electronically generates the radio frequencies. Transmit and receive frequencies can be located anywhere within your operating band, without degradation of specifications.

Synthesized frequency generation eliminates the bulk and expense of crystals or channel elements. This gives you a radio that is reliable, smaller and less costly to maintain. Broadband operation allows you to add or change frequencies, or operate in different systems within your band, with excellent voice clarity and coverage.

Choice of Power—The MaxTrac radio is available in either high or low power models in High Band, UHF, 800 and 900 MHz, or 60 watts in Low Band.

You can choose the MaxTrac mobile that will provide the coverage and "talk back" capabilities you'll need to communicate effectively.

Field Programmable—MaxTrac 100 mobile features a reprogrammable internal memory which can be accessed through the microphone connector with a personal computer and appropriate software.

Programmability allows you to add or change frequencies and squelch codes as often as you require. Your radio can easily adapt as your communication needs grow.

Multiple Coded Squelch Capability—You may mix both Private-Line and Digital Private-Line squelch codes in the same radio unit.

When you operate with coded squelch, only those users with the same code may hear a conversation. Mixing both types of squelch allows operation on two different repeater systems. This gives you greater flexibility in system design and coverage capability.

Talkaround Operation—MaxTrac radios provide talkaround operation, letting you bypass repeaters and communicate directly with another mobile or portable radio.

Talkaround operation gives you added communications flexibility to talk directly with other users. This is especially useful when you are travelling with another system user out of range or at a remote job site.

MIL-STD 810C and D Ruggedness—The radio's housing is constructed of durable, high impact polycarbonate. With the optional extra stability mount, (not required with Low Band, 35 watt 800 MHz, and 30 watt 900 MHz models) the MaxTrac mobile survives MIL-STD 810C and D for shock and vibration, the toughest environmental test for a mobile radio. The test includes vibrating the radio on all three perpendicular axes for a total of 9 hours, followed by a shock test that subjects the radio to an impact of 40 Gs on all six planes.

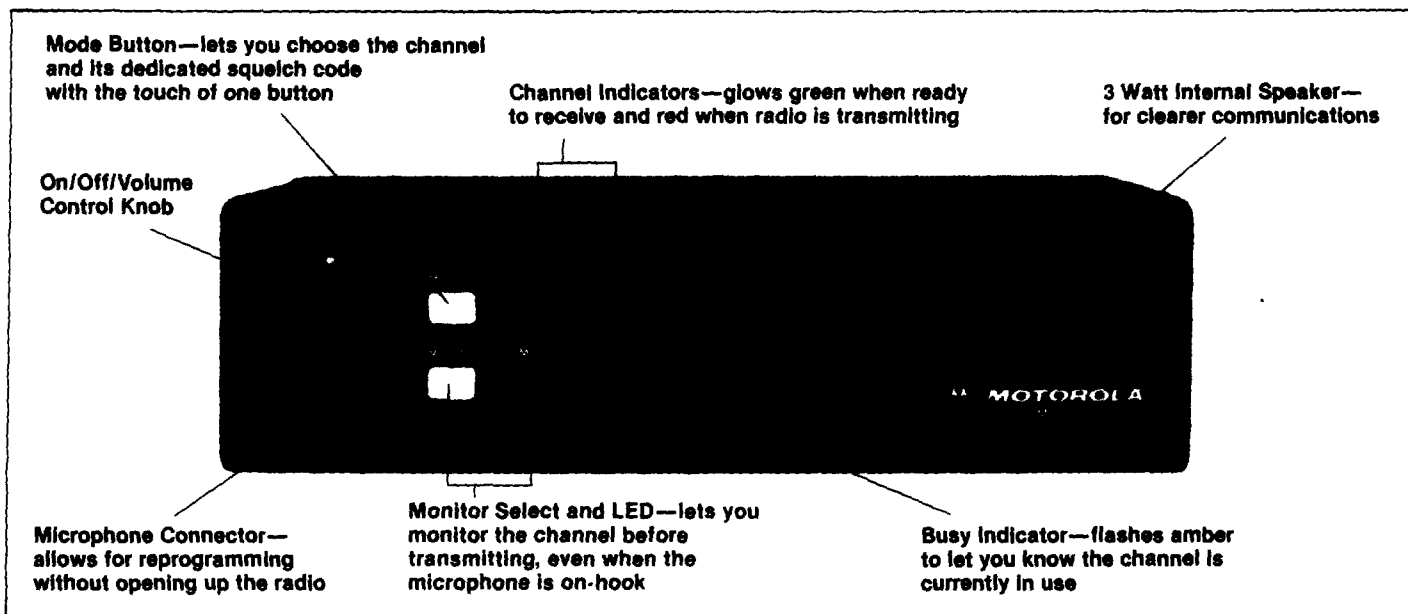
The sturdy MaxTrac mobile is designed to withstand years of heavy use and should keep performing for you, even under the most adverse conditions.

Time-out Timer—Automatically shuts off the transmitter after a 30 second interval. The radio alerts the operator with an audible tone before disconnecting.

Enhances reliable, continued communications by preventing a lock-up of a repeater, or tie-up of a channel due to inadvertent keying of the transmitter. To meet your specific requirements, the time-out timer may be disabled or changed through field reprogramming.

High Performance Compact Microphone—A lightweight, easily-gripped microphone is included standard with every MaxTrac radio.

This microphone is convenient to use and helps get your transmissions out loud and clear.



OPTIONS

Feature/Advantage

Expanded Options Connector—Optional 16-pin connector allows for a greater variety of options for MaxTrac mobiles. The 16-pin connector is standard on all 900 MHz models.

Allows you to add such options as Public Address, DC/Tone Remote, Local Control, MRTI and more.

External Speaker—Provides a separate 5 watt speaker for high noise environments.

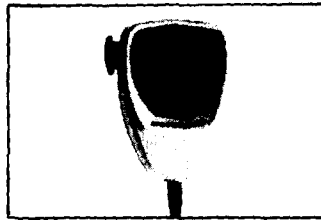
Gives you more speaker volume so conversations come through loud and clear, even under noisy conditions.

Public Address—Provides Internal/External Speakers and A/B Receive Audio—(Includes two 6 watt external power amplified speakers, one 5 watt external audio receive speaker, a control switch panel, and Expanded Options Connector).

Allows you to talk on amplified speakers located both inside and outside of your vehicle. Also allows you to hear radio transmissions on a separate external speaker. Ideal for school buses and construction sites.

Full-Sized Palm Microphone—Motorola's full-sized microphone is larger in size and weight, and is preferred by many users.

This durable microphone is convenient to use and stands up to constant use and abuse.



Handset Operation—This cellular styled handset (without DTMF keypad) replaces the standard compact microphone.

This type of handset provides additional communication privacy since conversations can only be heard through the handset and not through the speaker.

"Touch-Code" Microphone—Allows you to access the Public Telephone Network for simplex mobile-to-telephone conversations.

Provides the capability to make phone calls from the convenience of your vehicle. You can access important business numbers, without wasting time searching for a phone.

Keylock Mount—Secures the radio with a two-piece, detachable trunnion that locks together. (Not available with Low Band, 35 watt 800 MHz, and 30 watt 900 MHz models)

Allows you to lock your radio in place for added security.

Extra Stability Mount—Used with non-locking mounts for protection against vibration and shock. (Not required with Low Band, 35 watt 800 MHz, and 30 watt 900 MHz models)

Provides added stability to help protect your radio from jolts, bumps and severe vibration environments.

Control Station Operation—Converts a mobile radio into a desktop control station by adding a power supply, angled mounting tray and desk microphone.

Lets you operate a MaxTrac control station from your desktop. You can also interchange your desktop radio with a mobile radio for maximum flexibility with less equipment costs.

Noise Cancelling Microphone—Provides a specialized microphone to screen out background noise.

You'll be heard loud and clear, even when you transmit from a high noise environment.

STAT-ALERT Signalling—Offers Push-To-Talk ID, Radio Check, Voice Selective Call with acknowledgement, "Call Alert" Decode with acknowledgement, (DOS) Data Operated Squelch.

The dispatcher will immediately know who's on the air, reducing the need for voice transmissions. Data Operated Squelch eliminates the annoyance of hearing ID's on the channel. In addition, the dispatcher may selectively call a mobile or send a call alert to page an operator who is out of the vehicle.

Quik Call II Signalling—Provides a choice of Voice Selective Call or "Call Alert" Decode.

Allows the dispatcher to selectively call a mobile or send a call alert to page an operator who is out of the vehicle.

DTMF Decode Signalling—Provides a choice of Voice Selective Call, "Call Alert" Decode, or Telephone Interconnect (Telephone Interconnect requires a B20 option).

Selective Signalling permits you to stay in touch with key personnel in your fleet and can also activate equipment located at remote locations. Telephone Interconnect allows access to simplex mobile-to-telephone communication and eliminates time wasted looking for pay telephones.

External Alarm Operation—Allows a "Call Alert" page to activate the vehicle's horn or lights by means of an optional Alarm Relay.

This gives operators who are frequently out of their vehicles confidence that they will be alerted to any incoming calls.

"MaxTrac 100" Mobile Radio

Performance Specifications

General

Band:	Low	VHF		UHF		800 MHz		900 MHz	
Model Series:	D51MJA	D33MJA	D43MJA	D34MJA	D44MJA	D35MJA	D45MJA	D27MJA	D37MJA
Typical RF Output:	60W	25W	45W	25W	40W	15W ¹	35W ²	12W ³	30W ²
Frequency: (MHz)	29.7-36 36-42 42-50	136-162 146-174	146-174	449-470	403-430 449-470	TX-806-825, 851-870 RX-851-870		TX-896-902, 935-941 RX-935-941	
Dimensions (H x W x L):	2" x 7" x 9.9" (50.8 x 178 x 251mm)	2" x 7" x 7.8" (50.8 x 178 x 198mm)				2" x 7" x 9.9" (50.8 x 178 x 251mm)	2" x 7" x 7.8" (50.8 x 178 x 198mm)	2" x 7" x 9.9" (50.8 x 178 x 251mm)	
Primary Voltage Input:						13.8 VDC			
Weight:	76 oz. (2.16 kg)	54 oz. (1.51 kg)					76 oz. (2.16 kg)	61 oz. (1.73 kg)	76 oz. (2.16 kg)
Maximum Current Drain Receive (5W):	1.6A	1.5A							
Transmit:	17.0A	9.5A	15.0A	9.5A	12.5A	7.5A	15A	6.5A	14A
Standby:	500mA	400mA						570mA	
Channel Capacity:	2 conventional channels								
FCC Designation:	ABZ89FT1620	ABZ89FT3712	ABZ89FT3730	ABZ89FT4713	ABZ89FT4741 (403-430) ABZ89FT4725 (449-470)	ABZ89FT5672 ABZ89FT5677 Talkaround	ABZ89FT5709	ABZ89FT5728	ABZ89FT5726
Squelch Capability:	Private-Line, Digital Private-Line coded squelch and/or carrier squelch								
¹ 12W in Talkaround		² 20W in Talkaround		³ 10W in Talkaround					

¹12W in Talkaround ²20W in Talkaround ³10W in Talkaround

Transmitter

	Low	VHF	UHF	800 MHz	900 MHz
Spurious & Harmonic Emissions:	60W - 61 dB	25W - 57 dB 45W - 60 dB	25W - 57 dB 40W - 60 dB	15W - 55 dB 35W - 59 dB	12W - 55 dB 30W - 58 dB
Frequency Stability: (-30°C to +60°C, 25°C ref.)	± 0.0005%			± 0.00025%	± 0.00015%
Modulation:	16KOF3E 16KOF1D 15KOF2D				10KOF1D 11KOF2D, 11KOF3E
Maximum Frequency Separation (MHz):	6.3 (29.7-36) 6.0 (36-42) 8.0 (42-50)	26 (136-162 MHz) 28 (146-174 MHz)	27 (403-430 MHz) 21 (449-470 MHz)	19	6
Audio Distortion:	5% measured per EIA				
Output Impedance:	50 Ohms				
Modulation Sensitivity:	80 mV				

Vibration and Shock Methods

Standard	Method	Procedure	Test	Radio Performance
MIL-STD 810C ¹	514.2	VIII	Vibration	Meets or exceeds published specs following vibration.
MIL-STD 810D ¹ Curve Category 10 minimum integrity swept sine & random	514.3	I	Vibration	Meets or exceeds published specs following vibration.
MIL-STD 810D	516.3	I	Shock	Meets or exceeds published specs following shock.
EIA RS-152B and EIA RS-204C	14.3 24.2		Vibration	Remains operational during vibration and meets or exceeds published specs after vibration.
EIA RS-152B and EIA RS-204C	15 25		Shock	Meets or exceeds published specs following shock.

(1)—Extra stability mount is required to meet MIL 810C/D specs. Can only be used with non locking trunnion. Extra stability mount is not required with Low Band, 35 watt 800 MHz, and 28 watt 900 MHz models.

Receiver

	Low	VHF	UHF	800 MHz	900 MHz
Channel Spacing:	20 kHz	30 kHz (25 kHz Int.)	25 kHz	12.5 kHz	12.5 kHz
Sensitivity 12 dB SINAD:	0.30 µV		0.40 µV	40 µV	40 µV
Intermodulation EIA SINAD:	80 dB	75 dB	75 dB	68 dB	65 dB
Spurious & Image Rejection:	80 dB	80 dB	75 dB	70 dB	70 dB
Selectivity EIA SINAD:	80 dB	75 dB	75 dB	68 dB	65 dB
Audio Output:	3W @ less than 5% distortion				
Frequency Stability (-30°C to +60°C, 25°C ref.):	± 0.0005%		± 0.00025%		± 0.00015%
Maximum Frequency Separation (MHz):	6.3 (29.7-36) 6.0 (36-42) 8.0 (42-50)	26 (136-162 MHz) 28 (146-174 MHz)	27 (403-430 MHz) 21 (449-470 MHz)	19	6
Input Impedance:	50 Ohms				



Support Services

Wherever Motorola sells, our product is backed by service. In the U.S., we have 900 authorized or company-owned centers. In addition, our products are serviced throughout the world by a wide network of company or authorized independent distributor service organizations.



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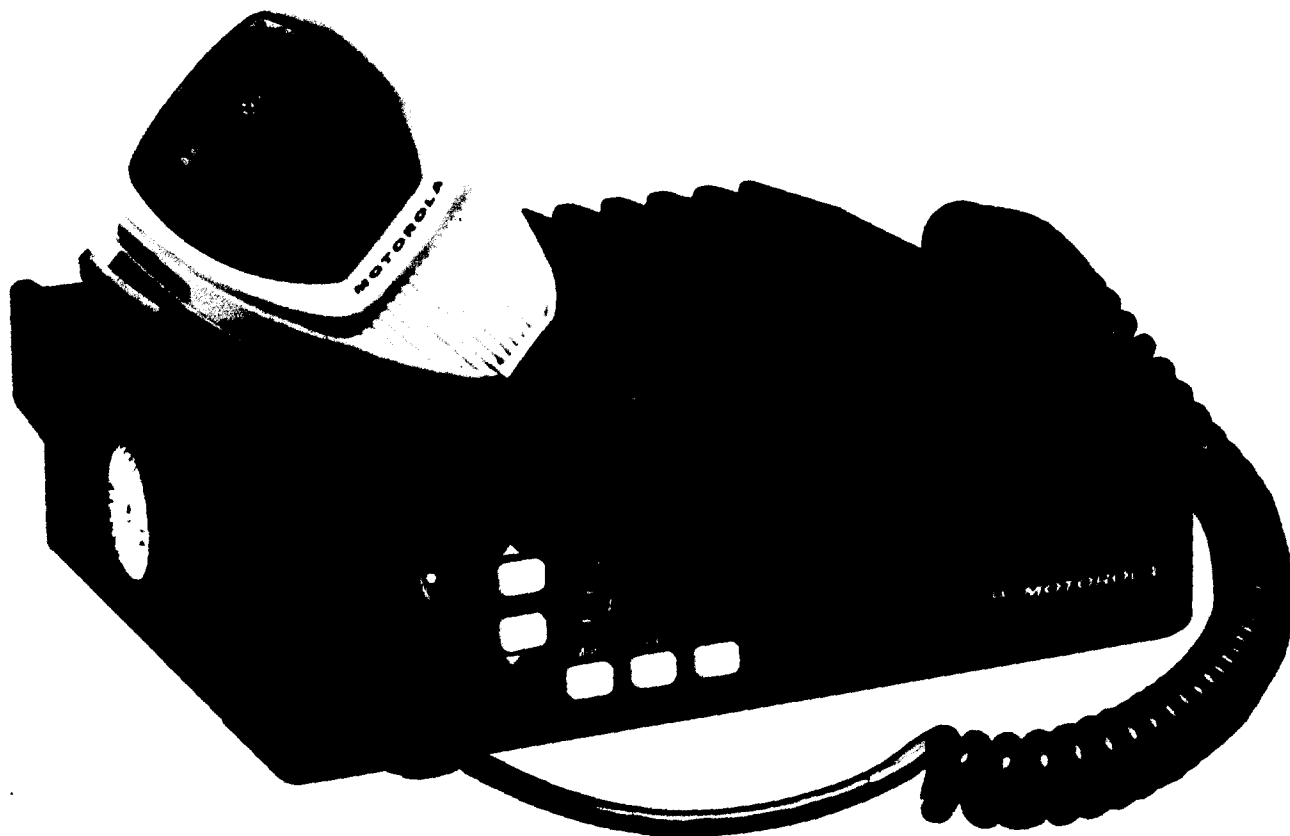
1301 E. Algonquin Road, Schaumburg, Illinois 60196
Telephone toll-free 1-800-247-2346

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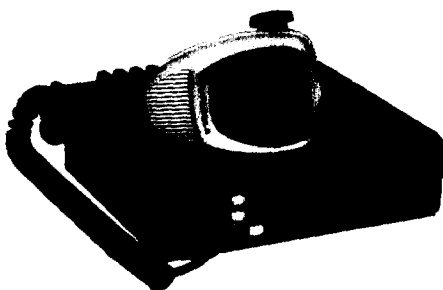


MOTOROLA

MaxTrac 300 Mobile Radio



32 Channel Model



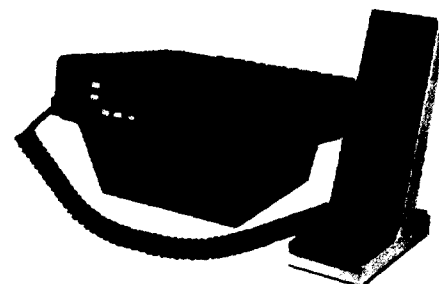
6 Channel Model
(shown with optional full-sized
palm microphone)

Featuring:

- Choice of 6, 16 or 32 channel models
- Talkaround operation
- Multiple Private-Line/
Digital Private-Line coded
squench capability
- Field Programmable

And

- 16 and 32 channel model offers
multiple scan capabilities as a
standard feature



Optional Control Station
(16 channel model)

"MaxTrac 300" Mobile Radio

STANDARD Feature/Advantage

Choice of Models—The MaxTrac 300 mobile offers 6, 16 and 32 channel models. (32 channel model not available at 900 MHz.)

You may choose the model with the channel capacity to suit your particular needs.

Choice of Power—The MaxTrac radio is available in either high or low power models in High Band, UHF, 800 and 900 MHz, or 60 watts in Low Band.

You can choose the MaxTrac mobile that will provide the coverage and "talk back" capabilities you'll need to communicate effectively.

Rugged Styling—This lightweight, compact radio's housing is made of high impact polycarbonate. With the optional extra stability mount (not required with Low Band, 35 watt 800 MHz, and 30 watt 900 MHz models), the MaxTrac mobile survives MIL-STD 810C and D for shock and vibration, the toughest environmental test for a mobile radio. The test includes vibrating the radio on all three perpendicular axes for a total of 9 hours, followed by a shock test that subjects the radio to an impact of 40 Gs on all six planes.

The sturdy MaxTrac mobile's small size is especially useful in today's downsized vehicles because your radio will fit conveniently under almost any dash. And it is designed to withstand years of heavy use and should keep performing for you, even under the most adverse conditions.

Time-out Timer—Automatically shuts off the transmitter after a 30 second interval. The radio alerts the operator with an audible tone before disconnecting.

Enhances reliable, continued communications by preventing a lock-up of a repeater, or tie-up of a channel due to inadvertent keying of the transmitter.

Numeric Display—Large, easy to read LED display indicates which channel is in use.

A quick glance provides immediate indication of channel selection.



Talkaround Operation—MaxTrac radios provide talkaround operation, letting you bypass repeaters and communicate directly with another mobile or portable radio.

Talkaround operation gives you added communications flexibility to talk directly with other users. This is especially useful when you are travelling with another system user out of range or at a remote job site.

Field Programmable—MaxTrac 300 mobile features a reprogrammable internal memory which can be accessed through the microphone connector with a personal computer and appropriate software.

Programmability allows you to add or change frequencies, squelch codes and scan lists as often as you require. Your radio can easily adapt as your communication needs grow.

Multiple Coded Squelch Capability—You may mix both Private-Line and Digital Private-Line squelch codes in the same radio unit.

When you operate with coded squelch, only those users with the same code may hear a conversation. Mixing both types of squelch allows operation on two different repeater systems. This gives you greater flexibility in system design and coverage capability.

SCAN KEEPS YOU IN TOUCH (Standard on 16 and 32 Channel Models)

Scans Silently—The MaxTrac 300 radio provides four different scanning capabilities, so you won't miss important messages. The radio internally monitors frequencies in your list, searching for activity important to you. When a properly encoded message is received, the radio automatically "opens up" the speaker so you hear just that message. After the transmission, the radio returns to the scan mode.

The radio scans silently, so you won't have to listen to all channel activity. You'll only hear those messages that are important to you.

User-Programmable Scan—Through buttons on the front panel of the radio, you can select the channels you want to scan and also designate first and second priority channels.

Gives you the flexibility to create and modify a unique scan list to suit your immediate needs. Your own list will be retained in the radio's memory until you decide to change it.



Nuisance Delete—If an annoying conversation on one of your non-priority channels is causing your scan to stop too frequently, and you choose not to listen to that channel, simply press the Select button down for two seconds to temporarily remove that channel from your scan list.

Temporarily removes and relieves the aggravation of a "frequent talker" on a non-priority channel from distracting you.

"Talk-back" Scan—Available through field programming, "talk-back" scan keeps your radio on the active channel in the scan list when the microphone is lifted from the hang-up clip. When your transmission is over, the radio will return to the scan mode automatically once the microphone is returned to its on-hook position.

"Talk-back" scan can give you more time to respond to an important call, so you don't have to scroll back to the active channel. And you don't have to remember to re-enter the scan mode, even when the power is turned off, because the only way to leave the scan mode is to press the scan button.

OPTIONS

Feature/Advantage

Expanded Options Connector—The 16-pin connector allows for a greater variety of options for MaxTrac mobiles. It comes standard on 900 MHz models and all 32 channel models, and is optional on the 6 and 16 channel models.

Allows you to add such options as Public Address, DC/Tone Remote, Local Control, MRTI and more.

External Speaker—Provides a separate 5 watt speaker for high noise environments.

Gives you more speaker volume so conversations come through loud and clear, even under noisy conditions.

Public Address—Provides Internal/External Speakers and A/B

Extra Stability Mount—Used with non-locking mounts for protection against vibration and shock. (Not required with Low Band, 35 watt 800 MHz, and 30 watt 900 MHz models)

Provides added stability to help protect your radio from jolts, bumps and severe vibration environments.

Control Station Operation—Converts a mobile radio into a desktop control station by adding a power supply, angled mounting tray and desk microphone.

Lets you operate a MaxTrac control station from your desktop. You can also interchange your desktop radio with a mobile radio for maximum flexibility with less equipment costs.

"MaxTrac 300" Mobile Radio

Performance Specifications

General

Band:	Low	VHF		UHF		800 MHz		900 MHz	
Model Series:	D51MJA	D33MJA	D43MJA	D34MJA	D44MJA	D35MJA	D45MJA	D27MJA	D37MJA
Typical RF Output:	60W	25W	45W	25W	40W	15W*	35W**	12W***	30W**
Frequency: (MHz)	29.7-36 36-42 42-50	136-162 146-174	146-174	449-470	403-430 449-470	TX-806-825, 851-870 RX-851-870		TX-896-902, 935-941 RX-935-941	
Dimensions (H x W x L):	2" x 7" x 9.9" (50.8 x 178 x 251mm)	2" x 7" x 7.75" (50.8 x 178 x 198mm)				2" x 7" x 9.9" (50.8 x 178 x 251mm)		2" x 7" x 7.8" (50.8 x 178 x 198mm)	2" x 7" x 9.9" (50.8 x 178 x 251mm)
Primary Voltage Input:					13.8 VDC				
Weight:	76 oz. (2.16 kg)	54 oz. (1.51 kg)				76 oz. (2.16 kg)		61 oz. (1.73 kg)	76 oz. (2.16 kg)
Maximum Current Drain Receive (5W):	1.6A	1.5A							
Transmit:	17.0A	9.5A	15.0A	9.5A	12.5A	7.5A	15A	6.5A	14A
Standby:	500mA	400mA					570mA		
Channel Capacity:					6, 16 or 32 conventional channels				
FCC Designation:	ABZ89FT1620	ABZ89FT3712	ABZ89FT3730	ABZ89FT4713	ABZ89FT4741 (403-430) ABZ89FT4725 (449-470)	ABZ89FT5672 ABZ89FT5677 (Talkaround)	ABZ89FT5709	ABZ89FT5728	ABZ89FT5726
Squelch Capability: Private-Line, Digital Private-Line coded squelch and/or carrier squelch									
External Speaker (Option):					5W				

*12W in Talkaround **20W in Talkaround ***10W in Talkaround

Transmitter

	Low	VHF	UHF	800 MHz	900 MHz
Spurious & Harmonic Emissions:	60W -61 dB	25W -57 dB 45W -60 dB	25W -57 dB 40W -60 dB	15W -55 dB 35W -59 dB	12W -55 dB 30W -58 dB
Frequency Stability: (-30°C to +60°C, 25°C ref.)	±0.0005%			±0.00025%	±0.00015%
Modulation:	16KOF3E, 16KOF10, 15KOF20				10KOF1D, 11KOF2D, 11KOF3E
Maximum Frequency Separation (MHz):	6.3 (29.7-36) 6.0 (36-42) 9.0 (42-50)	26 (136-162 MHz) 28 (146-174 MHz)	27 (403-430 MHz) 21 (449-470 MHz)	19	6
Audio Distortion:	5% measured per EIA				
Output impedance:	50 Ohms				

Receiver

	Low	VHF	UHF	800 MHz	900 MHz
Channel Spacing:	20 kHz	30 kHz (25 kHz Int.)	25 kHz	12.5 kHz	12.5 kHz
Sensitivity 12 dB SINAD:	0.30 µV		0.40 µV	40 µV	40 µV
Intermodulation EIA SINAD:	80 dB	78 dB	75 dB	68 dB	65 dB
Spurious & Image Rejection:	80 dB	80 dB	75 dB	70 dB	70 dB
Selectivity EIA SINAD:	80 dB	80 dB	75 dB	68 dB	65 dB
Audio Output:	3W @ less than 5% distortion				
Frequency Stability (-30°C to +60°C, 25°C ref.):	±0.0005%		±0.00025%	±0.00015%	±0.00015%

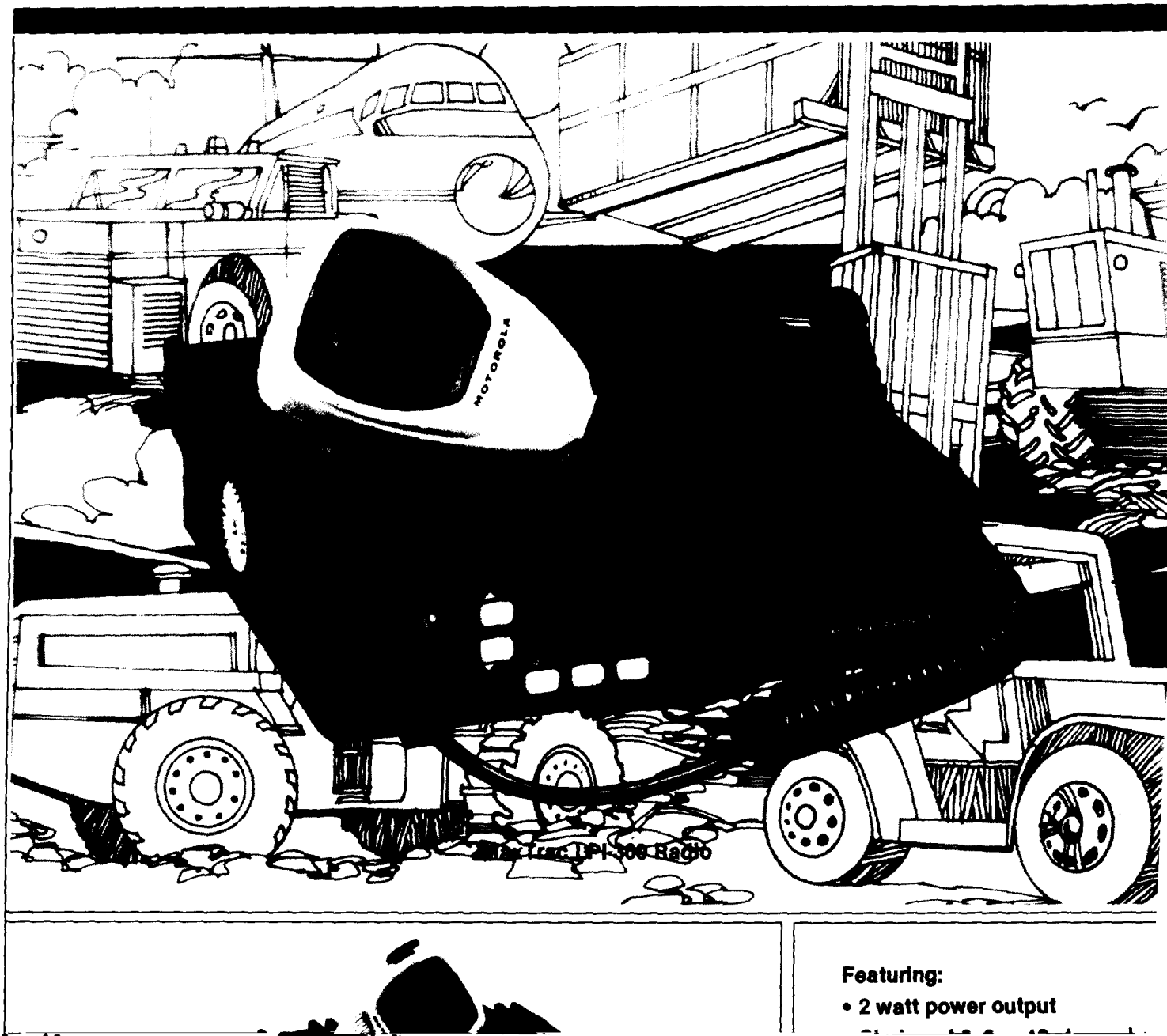


MOTOROLA

MaxTrac LPI

Mobile Radios

VHF and UHF-Low Power
Industrial Models



Featuring:
• 2 watt power output

"MaxTrac LPI" Mobile Radios

STANDARD Feature/Advantage

Choice of Models—The MaxTrac LPI mobile is available in three basic models: 2 channel LPI-50, 6 channel LPI-300 and 16 channel LPI-300 with scan.

You may choose the model with the channel capacity to suit your particular needs.

Rugged Styling—This lightweight, compact radio's housing is high impact polycarbonate and measures only 2 by 7 by 7.75 inches. With the optional extra stability mount, the MaxTrac mobile survives MIL-STD 810C and D for shock and vibration, the toughest environmental test for a mobile radio. The test includes vibrating the radio on all three perpendicular axes for a total of 9 hours, followed by a shock test that subjects the radio to an impact of 40 Gs on all six planes.

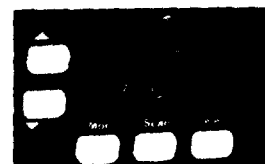
The sturdy MaxTrac mobile's small size is especially useful in today's downsized vehicles because your radio will fit conveniently under almost any dash. And it is designed to withstand years of heavy use and should keep performing for you, even under the most adverse conditions.

Time-out Timer—Automatically shuts off the transmitter after a 30 second interval. The radio alerts the operator with an audible tone before disconnecting.

Enhances reliable, continued communications by preventing a lock-up of a repeater, or tie-up of a channel due to inadvertent keying of the transmitter.

Numeric Display—Large, easy to read LED display indicates which channel is in use. (LPI-300 only)

A quick glance provides immediate indication of channel selection.



Talkaround Operation—MaxTrac radios provide talkaround operation, letting you bypass repeaters and communicate directly with another mobile or portable radio.

Talkaround operation gives you added communications flexibility to talk directly with other users. This is especially useful when you are travelling with another system user out of range or at a remote job site.

Field Programmable—MaxTrac LPI mobile features a reprogrammable internal memory which can be accessed through the microphone connector with a personal computer and appropriate software.

Programmability allows you to add or change frequencies, squelch codes and scan lists as often as you require. Your radio can easily adapt as your communication needs grow.

Multiple Coded Squelch Capability—You may mix both Private-Line and Digital Private-Line squelch codes in the same radio unit.

When you operate with coded squelch, only those users with the same code may hear a conversation. Mixing both types of squelch allows operation on two different repeater systems. This gives you greater flexibility in system design and coverage capability.

SCAN KEEPS YOU IN TOUCH (Only available on 16 channel models)

Scans Silently—The MaxTrac LPI-300 radio provides four different scanning capabilities, so you won't miss important messages. The radio internally monitors frequencies in your list, searching for activity important to you. When a properly encoded message is received, the radio automatically "opens up" the speaker so you hear just that message. After the transmission, the radio returns to the scan mode.

The radio scans silently, so you won't have to listen to all channel activity. You'll only hear those messages that are important to you.

User-Programmable Scan—Through buttons on the front panel of the radio, you can select the channels you want to scan and also designate first and second priority channels.

Gives you the flexibility to create and modify a unique scan list to suit your immediate needs. Your own list will be retained in the radio's memory until you decide to change it.



Nuisance Delete—If an annoying conversation on one of your non-priority channels is causing your scan to stop too frequently, and you choose not to listen to that channel, simply press the Select button down for two seconds to temporarily remove that channel from your scan list.

Temporarily removes and relieves the aggravation of a "frequent talker" on a non-priority channel from distracting you.

"Talk-back" Scan—Available through field programming, "talk-back" scan keeps your radio on the active channel in the scan list when the microphone is lifted from the hang-up clip. When your transmission is over, the radio will return to the scan mode automatically once the microphone is returned to its on-hook position.

"Talk-back" scan can give you more time to respond to an important call, so you don't have to scroll back to the active channel. And you don't have to remember to re-enter the scan mode, even when the power is turned off, because the only way to leave the scan mode is to press the scan button.

OPTIONS

Feature/Advantage

Expanded Options Connector—The 16-pin connector allows for a greater variety of options for MaxTrac mobiles.

Allows you to add such options as Public Address, DC/Tone Remote, Local Control, MRTI and more.

External Speaker—Provides a separate 5 watt speaker for high noise environments.

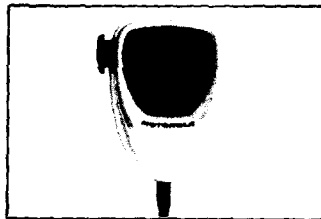
Gives you more speaker volume so conversations come through loud and clear, even under noisy conditions.

Public Address—Provides Internal/External Speakers and A/B Receive Audio—(Includes two 6 watt external power amplified speakers, one 5 watt external audio receive speaker, a control switch panel, and Expanded Options Connector).

Allows you to talk on amplified speakers located both inside and outside of your vehicle. Also allows you to hear radio transmissions on a separate external speaker. Ideal for school buses and construction sites.

Full-Sized Palm Microphone—Motorola's full-sized microphone is larger in size and weight, and is preferred by many users.

This durable microphone is convenient to use and stands up to constant use and abuse.



Handset Operation—This cellular styled handset (without DTMF keypad) replaces the standard compact microphone.

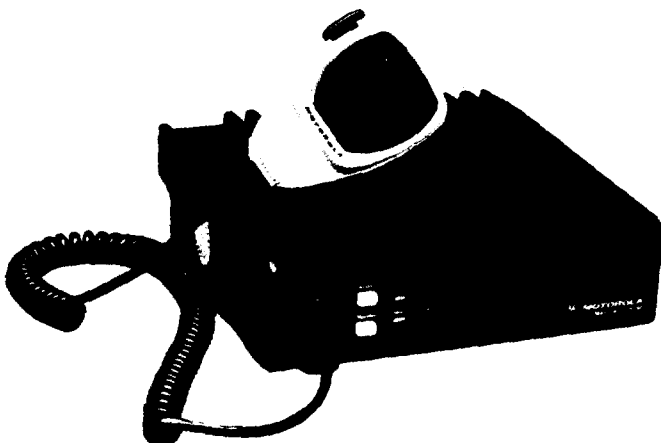
This type of handset provides additional communication privacy since conversations can only be heard through the handset and not through the speaker.

"Touch-Code" Microphone—Allows you to access the Public Telephone Network for simplex mobile-to-telephone conversations.

Provides the capability to make phone calls from the convenience of your vehicle. You can access important business numbers, without wasting time searching for a phone.

Keylock Mount—Secures the radio with a two-piece, detachable trunnion that locks together.

Allows you to lock your radio in place for added security.



MaxTrac LPI-50

Extra Stability Mount—Used with non-locking mounts for protection against vibration and shock.

Provides added stability to help protect your radio from jolts, bumps and severe vibration environments.

Control Station Operation—Converts a mobile radio into a desktop control station by adding a power supply, angled mounting tray and desk microphone.

Lets you operate a MaxTrac control station from your desktop. You can also interchange your desktop radio with a mobile radio for maximum flexibility with less equipment costs.

Noise Cancelling Microphone—Provides a specialized microphone to screen out background noise.

You'll be heard loud and clear, even when you transmit from a high noise environment.

STAT-ALERT Signalling—Offers Push-To-Talk ID, Radio Check, Voice Selective Call, "Call Alert" Decode with acknowledgement, (DOS) Data Operated Squelch.

The dispatcher will immediately know who's on the air, reducing the need for voice transmissions. Data Operated Squelch eliminates the annoyance of hearing ID's on the channel. In addition, the dispatcher may selectively call a mobile or send a call alert to page an operator who is out of the vehicle.

Quik-Call II Signalling—Provides a choice of Voice Selective Call or "Call Alert" Decode.

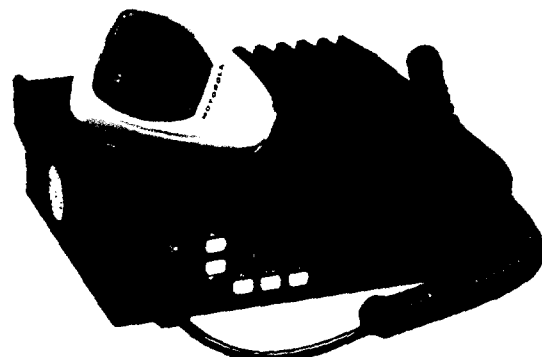
Allows the dispatcher to selectively call a mobile or send a call alert to page an operator who is out of the vehicle.

DTMF Decode Signalling—Provides a choice of Voice Selective Call, "Call Alert" Decode, or Telephone Interconnect (Telephone Interconnect requires a B20 option).

Selective Signalling permits you to stay in touch with key personnel in your fleet and can also activate equipment located at remote locations. Telephone Interconnect allows access to simplex mobile-to-telephone communication and eliminates time wasted looking for pay telephones.

External Alarm Operation—Allows a Call Alert to activate the vehicle's horn or lights by means of an optional Alarm Relay.

This gives operators who are frequently out of their vehicles confidence that they will be alerted to any incoming calls.



MaxTrac LPI-300

"MaxTrac LPI" Mobile Radios

Performance Specifications

General

Band:	VHF	UHF
Model Series:	D03MJA	D04MJA
Typical RF Output:	2W	
Frequency: (MHz)	146-174	449-470
Dimensions (H x W x L):	2" x 7" x 7.75" (50.8 x 178 x 198mm)	
Primary Voltage Input:	13.8 VDC	
Weight:	54 oz. (1.51 kg)	
Maximum Current Drain Receive (5W):	1.5A	
Transmit:	2.5A	
Standby:	400mA	
Channel Capacity:	LPI 50: 2 conventional channels	LPI 300: 6 or 16 conventional channels
FCC Designation:	ABZ89FT3742	ABZ89FT4765
Squelch Capability:	Private-Line, Digital Private-Line coded squelch and/or carrier squelch	
External Speaker (Option):	5W	

Transmitter

Band:	VHF	UHF
Spurious & Harmonic Emissions:	-46 dB	
Frequency Stability: (-30°C to +60°C, 25°C ref.)	± 0.0005%	
Modulation:	16K0F3E, 16K0F1D, 15K0F2D	
Maximum Frequency Separation:	LPI 50: 12 LPI 300: 28	LPI 50: 10 LPI 300: 21
Audio Distortion:	5% measured per EIA	
Output Impedance:	50 Ohms	
Modulation Sensitivity:	80 mV ± 4 dB	

Vibration and Shock Methods

Standard	Method	Procedure	Test	Radio Performance
MIL-STD 810C	514.2	VIII	Vibration	Meets or exceeds published specs following vibration
MIL-STD 810D Curve: Category 10 minimum integrity swept sine & random	514.3	I	Vibration	Meets or exceeds published specs following vibration
MIL-STD 810D	516.3	I	Shock	Meets or exceeds published specs following shock
EIA RS-152B and EIA RS-204C	14.3 24.2		Vibration	Remains operational during vibration and meets or exceeds published specs

Receiver

Band:	VHF	UHF
Channel Spacing:	30 kHz	25 kHz
Sensitivity 12 dB SINAD:	30 µV	
Intermodulation EIA SINAD:	LPI 50: 75 dB LPI 300: 78 dB	LPI 50: 70 dB LPI 300: 75 dB
Spurious & Image Rejection:	LPI 50: 75 dB LPI 300: 80 dB	LPI 50: 70 dB LPI 300: 75 dB
Selectivity EIA SINAD:	LPI 50: 75 dB LPI 300: 80 dB	LPI 50: 70 dB LPI 300: 75 dB
Audio Output:	3W (5W with optional external speaker) @ less than 5% distortion	
Frequency Stability (-30°C to 60°C, 25°C ref.):	± 0.0005%	
Maximum Frequency Separation:	LPI 50: 12 MHz LPI 300: 28 MHz	LPI 50: 10 MHz LPI 300: 21 MHz
Input Impedance:	50 Ohms	

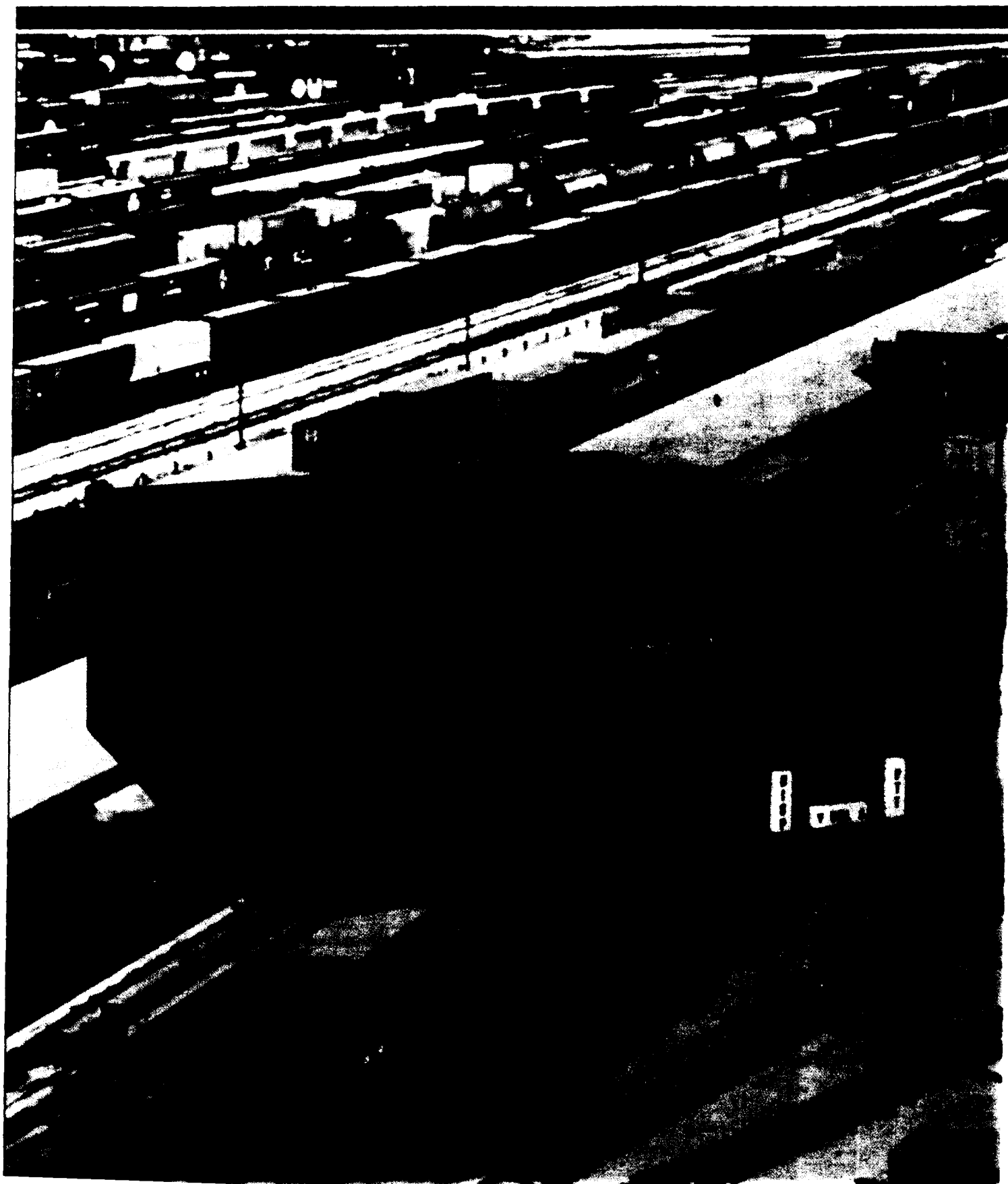
Winner 1988  National Quality



MOTOROLA

SPECTRA

Railroad Radio



Spectra Railroad Radio

Feature/Advantage

All Channel Radio with 99 Channels Programmable—The synthesized microprocessor controlled Spectra railroad radio is capable of operating on all frequencies in the 146-174 MHz band. Up to 99 channels can be programmed as home channels with a unique eight-character alphanumeric description. A displayed dispatcher call signalling tone can be slaved to, or independent of, home channel selection.

Selected channels can be displayed as either a 4-digit Frequency Allocation Plan (FAP) or home channel name. Channels can be quickly identified together with their signalling tones for easy access and correct operation.

Master Programming—All Spectra railroad radios come complete with the full complement of railroad carrier frequencies and signalling tones. The unit can be field programmed for other frequencies and special characteristics without disassembly of the radio.

Railroads have the ability to tailor the radio with a wide diversity of special operating features and options to suit their needs for the present and the future. As no disassembly is required, changes can be made quickly and inexpensively without affecting the integrity of the assembled radio.

Rugged and Reliable Design—Strong aluminum die-cast metal housings protect the Spectra railroad radio against harsh environments. The radio has been subjected to stringent mechanical and environmental testing to ensure ruggedness. The circuitry and radio construction has undergone extensive accelerated life testing.

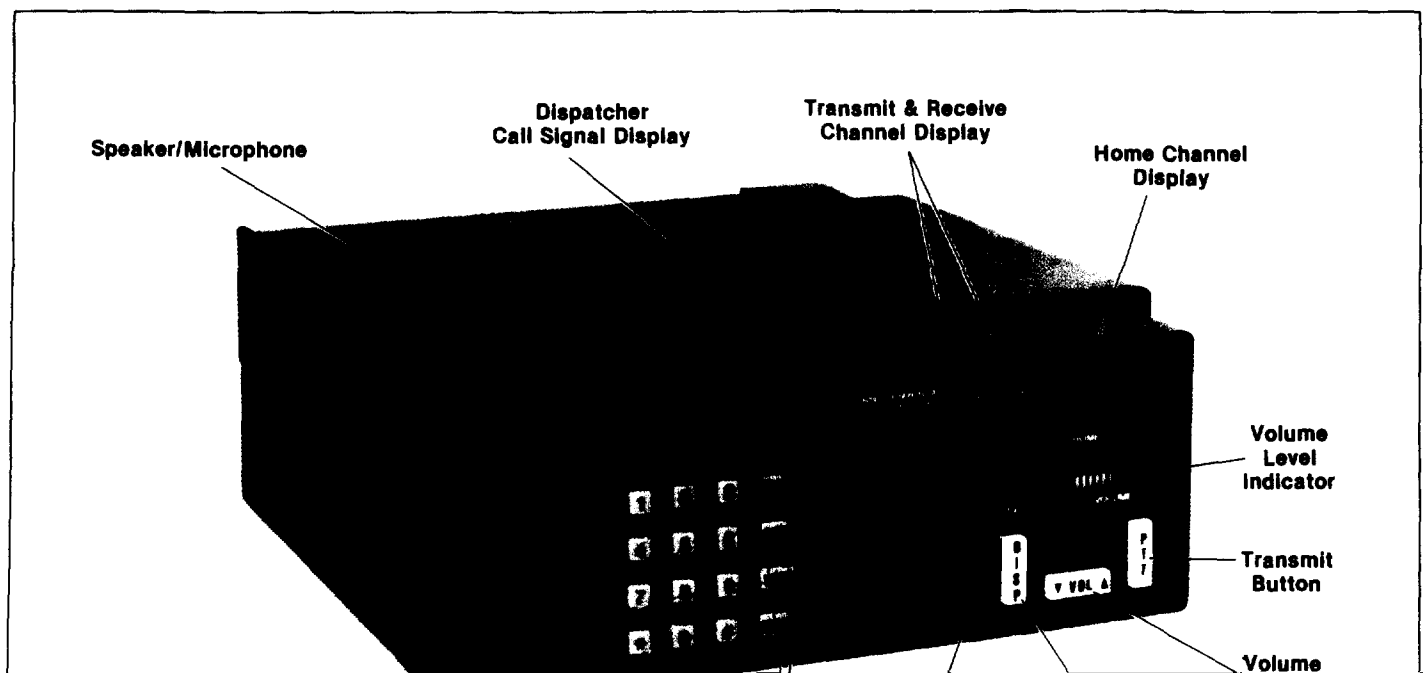
Superior reliability and durability in this radio means lower overall operating costs and uninterrupted service. Tough environments are no match for the Spectra railroad radio.

Modular Construction—The major elements of the Spectra railroad radio are modular in design.

Simplified servicing with modular construction allows quick and efficient access of the major radio elements.

Audible Control Tones for the User—Operation of the push buttons sound audible tones to the user to indicate correct operation. A tone is also provided to help set the volume control, when messages are not present from the speaker.

Operation of the controls is easier and more reliable.



Feature/Advantage

Alphanumeric Display—Bright vacuum fluorescent alphanumeric display intensity is automatically adjusted to suit ambient light conditions.

Variable intensity display enhances readability in bright sunlight as well as in the dark. Alphanumeric display provides the standard numerical display currently in use on railroads, plus the ability to program alpha home names and special messages to provide easy identification.

Operation Flexibility—The radio can be operated with the internal microphone, a handset, a palm-style microphone, or a wired-in microphone.

Flexibility is provided to ensure optimum operation in a wide range of applications.

Programmable Time-Out Timer—Automatically shuts off the transmitter after a pre-programmed period of air time.

Prevents tying up a channel by prolonged transmitter keying. A short alert tone warns the operator that the timer has shut off the transmitter. Transmitter resets instantly upon mic button release.

Simplified Servicing and Programming Access—A port is provided on the outside of the radio unit to facilitate many servicing requirements. The Spectra railroad radio uses the same programming accessories and cables as the Spectra mobile radio.

Requires no radio disassembly, reduces servicing time and associated costs and maintains the utmost reliability.

Transceiver Security System—Two lock mechanisms are externally located on the radio housing, an integral lock plus an optional padlock locking ear. Screws for disassembling are accessible only from the bottom of the chassis.

Restricts access to the transceiver and associated electronics by unauthorized personnel.

Primary Voltages—The Spectra railroad radio is available with two modular power converters—12 volt and 12/72 volt DC to DC converter designed for the locomotive electrical version.

Regardless of the power supply requirement, the Spectra radio can readily accommodate it. In addition, modular construction of the power supply enhances the overall ease of servicing.

STAT-ALERT (PTT) Unit ID—Every Spectra radio is capable of sending a unique ID code at the beginning or end of each transmission.

Unit IDs are automatically displayed for the dispatcher, helping minimize the amount of air-time required for transactions.

Data Compatible—The Spectra railroad radio is capable of being a data through-put device operating at 4800 baud.

The Spectra radio is able to form the heart of an advanced railroad communications system.

Improved Connector Configuration—Association of American Railroads (AAR) specified connectors have been recessed to provide protection.

Improved clearance ensures durability and reliability.

Easy-to-See Viewing Angle—Radio front panel has been designed for wide angle visibility of the displays.

The displays are easy to read from various viewing angles, allowing for many different mounting configurations.

Backlit and Color-coded Control Push Buttons—Buttons are color coded to identify function, and are backlit for operation in dark locations. Four-digit channel selection, home channel selection, DTMF operation, and selection/programming of the dispatcher call signal are all accessed through the keypad buttons.

Human-engineered controls offer user friendly operation without extensive training. Flush-mounted push button controls provide durability and clear indication of functions.

Handsetless Operation—Provides an integral microphone as part of the radio front panel together with a front panel PTT button.

Voice communication is immediately available, independent of the condition or location of the external microphone.

Signalling Tones—The railroad radio comes pre-programmed with 12 Dual Tone Multi Frequency (DTMF) tones and 9 single tones. Tone frequencies and their durations are field programmable.

The user has access to all required tones both for standard use and for special applications.

Future Option Compatibility—Modular design, microprocessor control, and extra new option space provide easy adaptability to future standard and customized options and features.

The Spectra railroad radio can be easily updated as the communications systems grow and evolve and demand new circuitry and software.

DTMF Keypad Programmability—DTMF characters such as star and pound can be selectively disabled, and tone duration with associated transmitter timing, can be programmed without disassembling the radio.

The user can easily and quickly adapt to special or changing signalling requirements of particular communications systems.

Spectra Railroad Radio

Performance Specifications

General

No. of Frequencies:	99 Synthesized Channels (includes 97 AAR FAP Channels)			
Dimensions:	12" L x 11.25" W x 4.75" H (305mm L x 285mm W x 121mm H)			
Weight:	10 kg (22 lb)			
Squelch Option:	Carrier Squelch			
Primary Power:	12V dc nominal, negative ground 72V dc, floating ground			
Frequency Range:	VHF Range II (146-174 MHz)			
Maximum Battery Current Drain: 13.8 V operation 72 V operation	Stand-by 1.5 A 0.8 A	Receiver 4.0 A 1.0 A	Transmit @ 40W Rating 15.0 A 4.0 A	Transmit @ 30 W Rating 13.0 A 3.5 A

Transmitter

Minimum RF Output Power:	40 Watts USA, 30 Watts Canada, 146-174 MHz	
Output Impedance:	50 ohms	
Frequency Stability:	$\pm 0.0005\%$ of assigned center frequency from - 30 °C to + 60 °C (+ 25 °C reference) ($\pm 0.00025\%$ optional)	
Spurious & Harmonics:	70 dB below carrier (for EIA specification RS152B)	
Modulation:	16KOF3E, 16KOF1D, 15KOF2D	
Audio Sensitivity:	360 mV ± 3 dB for 60% maximum deviation @ 1000 Hz	
Audio Response:	+1, -3 dB of a 6 dB/octave pre-emphasis characteristic from 300-3000 Hz	
Audio Distortion:	Less than 3% at 1000 Hz, 60% maximum deviation	
FM Hum and Noise:	- 50 dB (EIA method)	
Maximum Frequency Separation:	28 MHz	
Country	Model Series	Type Acceptance Number
US FCC Designation	MBR43KME	ABZ92FT3001

Receiver

Front Panel Speaker Audio Output:	10 watts at less than 3% distortion into ungrounded 2 ohm load
Auxiliary Speaker Audio Output:	5 watts at less than 3% distortion into ungrounded 8 ohm load
Input Impedance:	50 ohms
Frequency Stability:	$\pm 0.0005\%$ of assigned center frequency from - 30 °C to + 60 °C (+ 25 °C reference) ($\pm 0.00025\%$ optional)
Channel Spacing:	30 kHz
Spurious and Image Rejection:	90 dB
Sensitivity: (EIA spec. RS204C)	0.50 μ V
20 dB quieting:	0.35 μ V
12 dB SINAD	
Intermodulation: EIA SINAD	- 80 dB
Selectivity: (EIA SINAD)	- 85 dB
Maximum Frequency Separation:	28 MHz



Support Services

Wherever Motorola sells, our product is backed by service. In the U.S., we have 900 authorized or company-owned centers. In addition, our products are serviced throughout the world by a wide network of company or authorized independent distributor service organizations.



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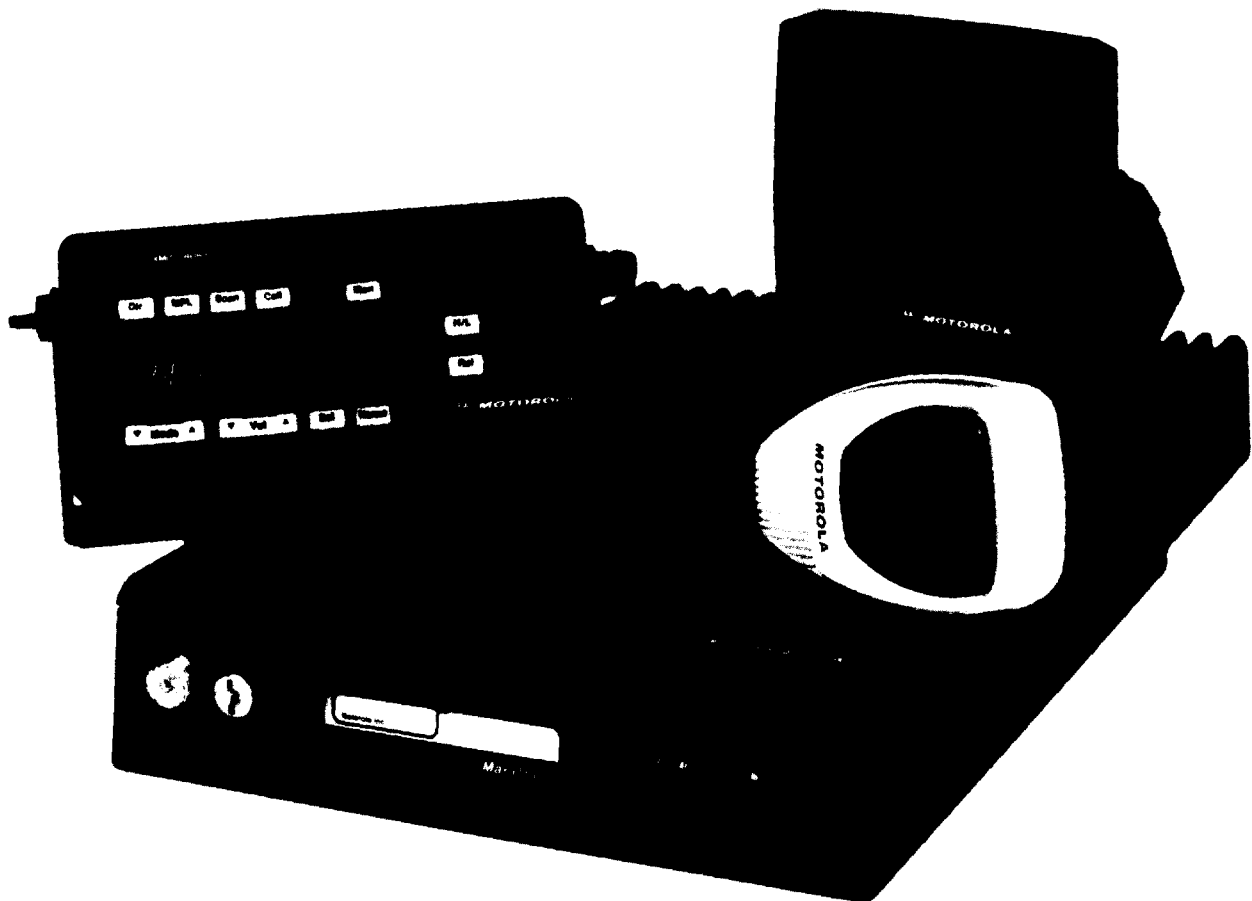
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MOTOROLA

MaraTrac Mobile Radio



- Package models in Low, VHF and UHF Bands.
- Synthesized for up to 99 channel capability.
- Choice of 3 control heads for added flexibility.
- Environmentally sound—survives MIL STD. 810 E.



"MaraTrac" Mobile Radio

STANDARD Feature/Advantage

Multiple Channel Capability—MaraTrac radio models come equipped with either 8, 16 or 99 channels. And you can choose to add talkaround.

The combination of multiple channels, SCAN and talk-around, allows you to organize your own radio system. You can tailor your communication for efficiency into smaller departments instead of one entire group.

Packaged Models—MaraTrac radio's microprocessor technology allows unique "feature packaging" to provide a choice of customized models that will meet your requirements.

Feature packaging simplifies your choices, so you can order a MaraTrac radio with the features you need to meet your specific communications requirements.

Wide Bandwidth Capability—Transmit and receive frequencies can be located anywhere within your operating band, without degradation of specifications.

Broadband operation allows you to add or change frequencies, or operate in different systems within your band. Now one radio can do the job of several!

Environmentally Sound—MaraTrac radios were engineered to survive requirements such as MIL STD. 810 E. Each radio shipped must pass rigorous quality assurance tests to give you the dependability you need.

Rest assured your MaraTrac radio will operate under various conditions. These tests have proven that even in open exposure to harsh working environments these radios will provide you with solid performance despite the weather and terrain.

Survives MIL STD. 810 E.

Rain—Simulates 2-5 inches per hour of rain with a horizontal wind velocity of 40 mph for a total test time of two hours.

Dust—Checks for ability of equipment to withstand effects of winddriven dust. The dust, a fine grained silica flour, is winddriven at varying velocities, for a total test time of 28 hours.

Salt Atmosphere—Determines durability of coatings and finishes exposed to cor-

rosive salt atmospheres. Test consists of exposure of the equipment to a salt fog atmosphere under controlled temperature and humidity conditions for a period of 48 hours.

Shock—While mounted, the radio will pass a test of 30g shocks on all 6 sides.

Vibration—A three-hour random vibration test designed for tracked vehicles, with measurements in all three axes.

Control Head Choice—Three control heads are available, depending on the MaraTrac package you choose.

- **Basic Model**—This package offers a durable rotary-type control head that's easy to use . . . even when you're wearing heavy gloves.

- **Hand-held Model**—Uniquely combining the control head and microphone functions, this model also offers a 2-digit display. Small and easy to conceal, the hand-held unit is especially useful for surveillance activities.

- **Advanced Model**—An easy-to-read, 2-digit LED display is featured on this model. Push button controls make operation quick and convenient.

Control head choices let you select the type of operation and control you need.

STAT-ALERT Unit Identification and Emergency—Every MaraTrac radio is capable of sending a unique ID code at the beginning of each transmission. This ID may be combined with an emergency status that's manually activated by the vehicle operator. (Not compatible with Quik-Call II, DTMF, or Single Tone signalling).

Dispatchers equipped with the appropriate decoder are automatically alerted to an emergency by an audible tone and visual readout of a specific radio ID. This emergency function provides added user safety and security. When used in the non-emergency mode, unit IDs are automatically displayed for the dispatcher, helping minimize the amount of air-time required for transmissions.

Choice of Squelch—Three types of squelch are available, depending on your need. You can have any combination of carrier, Private-Line or Digital Private-Line squelch on your radios.

Choice of squelch lets you mix and match within your radio system. Coded squelch minimizes annoying reception of signals by other users on the same channel. Operator fatigue is reduced and missed or misunderstood messages are minimized.

High Power—MaraTrac radios feature 100 watts of power output in both UHF and VHF and 110 watts in Low Band.

Different applications require different power levels and MaraTrac radio provides the power for long distance communication requirements in all three bands.

OPTIONS

Feature/Advantage

"TOUCH-CODE" Microphone—

This option lets you access the Public Telephone Network for simplex mobile-to-mobile conversations. Also available in backlit keypad model. (Not available on A5 models.)

Now you can make phone calls from the convenience of your vehicle, without spending time looking for a public telephone.



External Alarm—An operator leaving the vehicle simply presses the H/L button and the vehicle's horn and headlights will come on during an inbound call. (Available on A7 models only).



This function alerts a driver who's out of but near the vehicle that there is an important call. Now, operators have the flexibility to perform productive duties and stay in touch or wait for instructions.

Talkaround—Activating the Talkaround function allows your mobiles to bypass the repeater. It uses the mode's receive frequency and its squelch code for the Talkaround transmit frequency information.

Provides direct mobile-to-mobile and mobile-to-portable communications in a repeater system, increasing flexibility in talk configurations.

75 Watt Operation—This option reduces power output to 75 watts. (Not available with Low Band models).

Users who have power restrictions can still take advantage of MaraTrac radio's performance.

Handset Operation—Telephone type handset replaces the standard palm microphone. (Not available on A5 Package).

This type of handset provides additional communication privacy since conversations can only be heard through the handset and not the external speaker.

Auxiliary Switch Panel—This option offers the capability to control up to 8 electrical functions in the vehicle. (Available on A7 models only).

Now you can access many frequently used vehicle functions from a single panel.

Siren and P.A. Operation

Electronic Siren And Public Address—The MaraTrac radio offers a siren/PA option with 100 watts of continuous siren output power and 50 watts of public address output power.

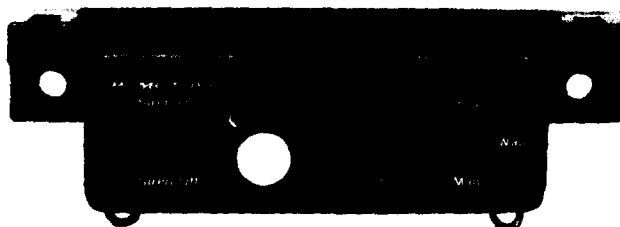
Manual Operations—Selection of this mode permits control of the siren from an optional switch.

This provides the means for hands-free operation when needed.

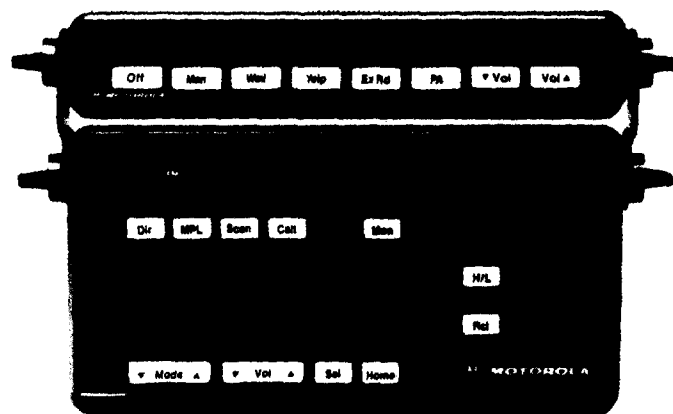
Three Siren Sounds—These varied pitches (yelp, wail, manual) allow the user to select the siren sound most desirable for the immediate need.

Public Address Mode—Public address provides traffic and crowd penetrating capabilities using the same microphone provided with the MaraTrac radio.

This means that only one speaker is needed for both siren and PA use.



Switch Control Siren/P.A. (Option B269)



Direct Entry Pushbutton Siren/P.A. with external receive audio. Available only on A7 package (Option B269AM)

Field Programmable—MaraTrac radios feature a reprogrammable internal memory which is controlled by an advanced microprocessor.

Reprogrammability allows you to add or change frequencies, squelch codes and signalling IDs as often as you require. Your radio can easily adapt as your communication needs grow. And, reprogramming can be done in the field, saving valuable time and money.



Remote Mount Capability—The remote mount radio allows installation under the seat, in the trunk or wherever convenient inside the vehicle, up to 17 feet from the control unit. Each control head can be installed on or under the dash . . . an important consideration with today's downsized vehicles.

Remote mounting capability allows flexibility to customize your radio installation, while retaining full MIL STD. 810 E environmental specifications.

Time-Out Timer—Automatically shuts off the transmitter and sounds an alert tone after a pre-programmed interval. This feature can be changed or overridden through field reprogramming.

Prevents lock-up of a repeater or tying-up of a channel by prolonged keying of the transmitter.

PACKAGE MODELS

MaraTrac radios are available in four package models. Each package includes all of the Standard features plus the extra features described below. In addition, you can add certain options to enhance the operation of your radios.

A2/A3 PACKAGES



Choice of Models—For multi-frequency operation, choose the 16 frequency A2 model. Users who need Channel Scan monitoring capability, can select the A3 model with 8 frequencies and scan. Both models feature the durable Basic control head.

MITREK Installation Compatibility—MaraTrac radios and Basic control heads can be put into the same radio installation as most high power MITREK radios (Systems 90 excluded). This easy change-out lets you upgrade your system quickly and conveniently.

A5/A7 PACKAGES

99 Channel Capability—Up to 99 channels means you can incorporate this radio into almost any multi-frequency system. Its large channel capacity gives you "built-in" flexibility to expand your system when you need to.

Numeric Display—A 2-digit LED display provides immediate indication of channel selection. And it's powerful enough to be easily seen . . . day or night.



Operator Selectable CHANNEL SCAN Monitoring—With this type of scan, your operators can define their own scan lists and be able to modify them when the need arises.

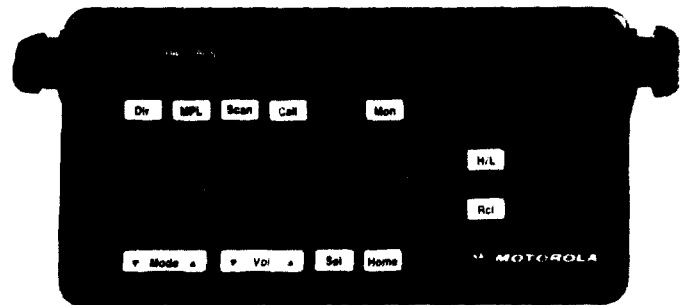
PACKAGE MODELS

A5 PACKAGES ONLY

Ease of Operation—A unique, compact hand-held control head/microphone is standard on A5 models. All radio controls are easily activated by the touch of a finger for convenient efficient communications.



A7 PACKAGES ONLY



Quick Disconnect—The hand-held control head can be easily removed from the vehicle allowing the operator to safely store it when the radio's not in use. This feature is particularly useful during covert operations.

Selectable Multiple Coded Squelch—Both Private-Line and Digital Private-Line coded squelch are available on this model. Operators can select up to 8 squelch codes, enhancing their ability to communicate on multiple repeater systems.

SIGNALLING OPTIONS

Feature/Advantage

STAT-ALERT Decode Signalling—Offers Voice Selective call and Call Alert decode with acknowledgement (Push To Talk).

"Single Tone" Encode Signalling—Provides a reliable system for repeater access or for remote control signalling.

"MaraTrac" Mobile Radio

Performance Specifications General

Channel Capability:	8, 16, or 99 Channels
Operation:	13.8 VDC Negative Ground Only
Radio Dimensions:	10.0" H x 14.5" W x 2.5" L
Weight:	16 lbs. (7.26 kg)
Metering:	Totally electronic using an IBM Personal Computer, a Radio Interface Box (RiB) and field service software.

Model	Pkg.	Minimum RF Power Output		Maximum Current Drain			
				Off @ 13.8V	Standby @ 13.8V	Receive at Rated Audio @ 13.8V	Transmit @ 13.4V
T81XTA7DA2-K	A2	29.7-50 MHz	110 Watts	60ma	700ma	3.0A	27A
T81XTA7DA3-K	A3	29.7-50 MHz	110 Watts	60ma	700ma	3.0A	27A
T81XTA7TA5-K	A5	29.7-50 MHz	110 Watts	60ma	700ma	3.0A	27A
T81XTA7TA7-K	A7	29.7-50 MHz	110 Watts	60ma	700ma	3.0A	27A
T73XTA7DA2-K	A2	150-174 MHz	100 Watts*	60ma	700ma	3.0A	27A
T73XTA7DA3-K	A3	150-174 MHz	100 Watts*	60ma	700ma	3.0A	27A
T73XTA7TA5-K	A5	150-174 MHz	100 Watts*	60ma	700ma	3.0A	27A
T73XTA7TA7-K	A7	150-174 MHz	100 Watts*	60ma	700ma	3.0A	27A
T74XTA7DA2-K	A2	450-470 MHz	100 Watts*	60ma	700ma	3.0A	31A
T74XTA7DA3-K	A3	450-470 MHz	100 Watts*	60ma	700ma	3.0A	31A
T74XTA7TA5-K	A5	450-470 MHz	100 Watts*	60ma	700ma	3.0A	31A
T74XTA7TA7-K	A7	450-470 MHz	100 Watts*	60ma	700ma	3.0A	31A

*VHF and UHF "MaraTrac" Mobile Radios are adjustable to 75 watts

Transmitter

Output Impedance:	50 ohms				
Spurious and Harmonics:	More than 80 dB below carrier (for EIA spec., RS152B)* *Spur @ $F_c \pm 14.4$ MHz within FCC (VHF Band)				
Frequency Stability:	$\pm 0.0005\%$ of assigned center frequency - 30°C to + 60°C. 25°C Ref				
Modulation:	15K0F2D, 16K0F1D, 16K0F3E				
Audio Sensitivity:	0.080V ± 4 dB for 60% max. deviation @ 1000 Hz				
FM Hum and Noise:	- 45dB Low Band, VHF - 40dB UHF				
Audio Response:	EIA				
Audio Distortion:	Less than 3% @ 1000 Hz, 60% max. deviation				
Maximum Frequency Separation:	29.7-36 MHz	36-42 MHz	42-50 MHz	150-174 MHz	450-470 MHz
	6.3 MHz	6 MHz	8 MHz	24.0 MHz	20.0 MHz

Control Head

Dimensions excluding mounting bracket:	A5 Package 2.3" H x 4.8" W x 1.5" L A2, A3 Package 5.2" H x 3.7" W x 1.8" L A7 Package 6.5" H x 3.4" W x 1.7" L
Weight:	12.0 oz (0.3 kg)

Speaker

Dimensions:	5.5" x 2.5" (excluding mounting bracket)
Weight:	1.5 lbs. (0.7 kg)



MOTOROLA

Winner 1988



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Specifications subject to change without notice.

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Receiver

Channel Spacing:	Low Band 20 kHz VHF 30 kHz (25 kHz int.) * & UHF 25 kHz				
Sensitivity— 12 dB EIA SINAD:	(per EIA Spec RS204C) Low Band: 0.35 μ V VHF, UHF 0.30 μ V				
Selectivity:	Low Band, VHF: -80dB, UHF -75dB				
Intermodulation:	Low Band, VHF -80 dB, UHF -75 dB				
Spurious & Image Rejection:	Low Band, VHF: -80 dB, UHF: -75dB				
Input Impedance:	50 ohms				
Audio Output:	10 Watts at less than 5% distortion (into 3.2 ohm load at 1000 Hz)				
Maximum Frequency Separation:	29.7-36 MHz 6.3 MHz	36-42 MHz 6 MHz	42-50 MHz 8 MHz	150-174 MHz 24.0 MHz	450-470 MHz 20.0 MHz
Frequency Stability:	-30°C to +60°C, 25°C Ref. $\pm 0.0005\%$ of assigned center frequency				

FCC Designation

Low Band—ABZ89FT1619
VHF—ABZ89FT3731
UHF—ABZ89FT4728

*VHF Standard at 30 kHz, field programmable to 25 kHz

MIL-STD 810E Testing

Environmental Performance

Standard	Method	Procedure	Test	Radio Performance
MIL-STD 810E	514.3	1	Vibration (Functional)	Meets or exceeds published specs following vibration testing.
MIL-STD 810E	516.3	1	Shock (Mechanical)	Meets or exceeds specs following shock testing.
MIL-STD 810E	506.2	1	Rain (Wind driven)	Meets or exceeds specs following rain testing.
MIL-STD 810E	509.2	1	Salt Fog	Meets or exceeds specs following salt fog testing.
MIL-STD 810E	510.2	1	Sand and Dust	Meets or exceeds specs following sand and dust testing.

For additional environmental specifications information refer to the MIL-STD 810 document RQ-1-193.



Support Services

Wherever Motorola sells, our product is backed by service. In the U.S., we have 900 authorized or company-owned centers. In addition, our products are serviced throughout the world by a wide network of company or authorized independent distributor service organizations.

R3-1-155

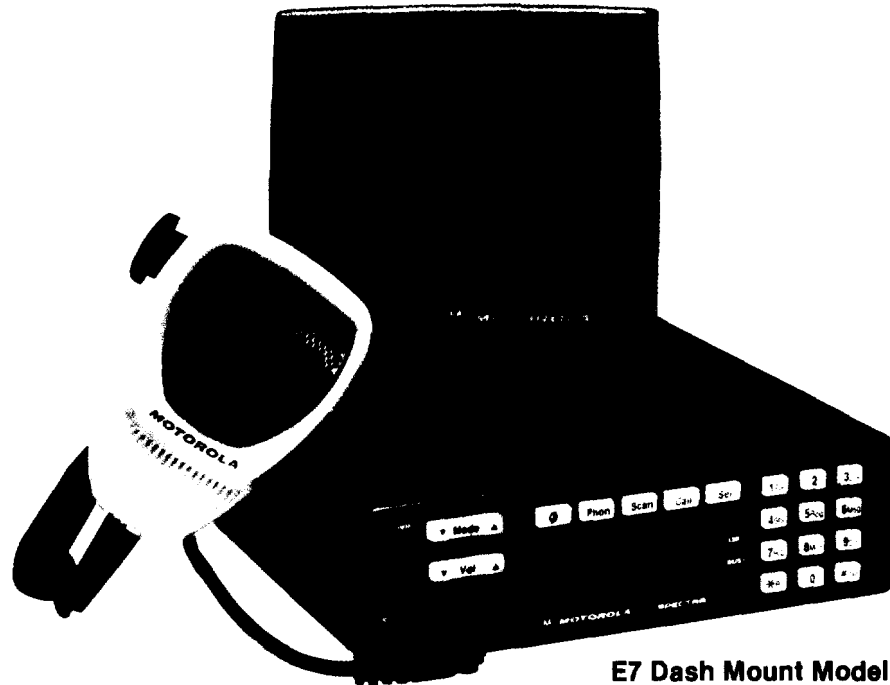


MOTOROLA



SPECTRA-E Radio

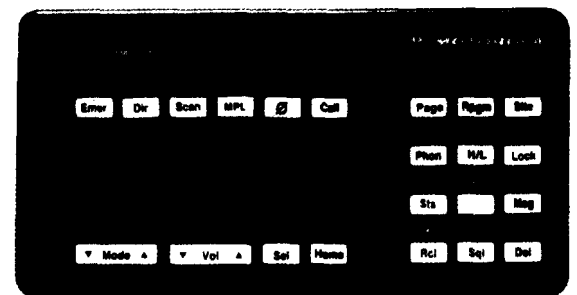
for VHF, UHF, 800 and 900 MHz
SmartZone Wide-Area Systems
including VHF, UHF and 800 MHz
SECURENET Capable Models



E7 Dash Mount Model



E5 Model with Optional Remote Mounting



E9 Model Control Head

Features and Options

- Choice of 4 fully equipped package models
- Alphanumeric display for user friendly operation
- MIL-STD 810D reliability
- Exclusive HearClear audio enhancement (900 MHz only)
- Stat-Alert Conventional Signalling
- Front panel programming
- Trunked and Conventional Operation
- PRIVATE CONVERSATION with Call Alert capability
- Optional remote mount capability
- Trunked and conventional Securenet encryption capability (VHF, UHF and 800 MHz only)
- Control Station Operation
- Auxilliary Switch Panel